GOING BEYOND UNIPLEX TIES: AN ANALYSIS OF MULTIPLE NETWORK TIES ON JOB SATISFACTION

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Abstract. *Multiple networks are overlooked in previous research studies and not much attention is given to the occurrences of such relational ties. By imprinting the concept of social ledger, the paper suggests that multiple networks can exist in combination of both positive and negative ties i.e. potential benefits and liabilities can be derived within a social relation. The study explores to identify how multiple friendship-hindrance network centrality (indgree and outdegree) affect an employee's job satisfaction level. A sociometric and traditional questionnaire is used to collect data from 131 employees at the Quetta head office of a premier telecommunication company. Data is analyzed using UCINET VI and SPSS software. The finding indicates that indegree centrality of friendship-hindrance network is negatively associated with job satisfaction. The consequence of these ties is due to the interplay of social and instrumental relation which commonly operates in today working environment. Therefore, the study proposed that negative repercussions should be handled in a productive and optimal manner so that the impediments may not impel the positives of a relationship.*

Key words: Job Satisfaction, Multiple Networks, Multiple Friendship-Hindrance Network, Network Degree Centrality, Job Descriptive Index (JDI).

Introduction

Social network is the tool that comprehends the interrelationship between individuals and helps to gauge the propensity of how employees can engage in different relationship ties. Most of the research studies focused attention on uniplex ties i.e. single ties and a few initiated the concept of multiple network ties. Multiple or Multiplex ties is a measure of relations that exist between pair of individuals; such individuals are thought to be linked by multiple social relational ties (Hood, Cruz, & Bachrach, 2016). This is an emerging concept of

social network and less number of researches is conducted to explore the underline structure of multiplex ties (Bliemel, McCarthy, and Maine, 2014). According to Robins and Pattison (2006) such ties are complex yet unique in its existence. These ties are typically defined at dyadic level with occurrence of two or more different types of relations (Methot, Lepine, Podsakoff, & Christian, 2015; Hood, Cruz, & Bachrach, 2016). The study elucidates these ties as interactions of exchange within and across relationships and defined as, "the extent to which two actors are linked together by more than one relationship" (Brass, 1995). Such types of ties are thought to simultaneously affect network dynamics and its outcomes (Shipilov, 2012). Due to its overlapping nature and multilevel perspective the study take reflect on these relational associations with one of the most vital variable of workplace, job satisfaction. Such research studies are rare and often ignored due to its complex prorogation and interdependence. Additionally, the individuals connected by diversified multiplex ties carry detailed knowledge and are intimately stronger than uniplex ties (Guenther, Guenther, Bell, & Robins, 2016). However, this study takes a step forward to explore multiple relational ties by confining positive and negative ties within the same network relationship. It is an attempt to fill the gap in the literature by examining the association of these complex ties with job satisfaction and also measuring its impact.

The theory of social capital and social ledger approach are applied as the conceptual grounding for the general prediction of the study as it explains why multiple social relationships influence job satisfaction. The social capital theory outlines that in order to acquire benefits employees exchange resources through mutual interactions. Hence, it can be appropriate to articulate social relations as a type of social resources. Thus, exemplify social network "as the sum of actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit (Methot, 2010).

Moreover, Moreover, the dominant approach of social ledger comprising of both negative and positive social ties accrued from harmful and affectionate feelings or liabilities is also taken into account. According to Labianca and Brass (2006) the relationships should be examined under the intervening process of social assets and liabilities. As the financial ledger is incomplete without assets, liabilities and its returns, similarly social ledger outcomes are solely based on positivity and negativity that prevails in the network. Alike financial ledger this approach proposes that positive and negative ties that may serves to offset the effects of each other and influences the associated outcome. The study adopts this approach to further explain the effect of these positive and negative multiple

ties on job satisfaction. Although positive and negative ties are diversely differentiated and there are many forms of such ties. The study considered two of the basic forms of such ties as one multiple tie i.e. friendship ties also named as expressive ties and hindrance ties that creates impediments within the organizational working setup (Robins & Pattison, 2006, Rafaeli, Cranford, Green, Shrout, & Bolger, 2008; Marineau, Labianca & Kane, 2016). Hence, creating a new multiplex network variable by amalgamation of two single stranded ties.

Literature Review

Literature revealed that most of social network research has exclusively focused on the social capital benefits which are associated with positive social ties and largely ignored negative ties. Thus, research studies demonstrate much on uniplex (single-stranded) social relational ties rather than multi-strandedness of social network ties. However, scholars emphasized to expand the research on multiplex ties and a few have worked on the same line. The approach of social ledger proposed by Labianca and Brass (2006) views social interactions through two offsetting paths: positive and negative. In other words, it is the accumulation and depletion of resources i.e. it views not only social capital but also social liabilities. It entitled recurring of social ties accompanied by positive or negative affect and an intention to help or harm the other. Its outcomes are solely based on positivity and negativity that prevails in the network. However, this concept also examines the positivity and negativity of ties in separate strands ignoring the multi-relational nature of ties.

Moreover, previous studies identified the uniplex relationship of social network (positive/negative) ties on job satisfaction (Baldwin, Bedell, & Johnson, 1997; Venkataramani, Labianca & Grosser , 2013) while a few studies discuss about multiplex relationships; how these relations effect in understanding individual attitude and behavior (Robins & Pattison, 2006; Methot, 2010). To the best of knowledge, no study conducted a research on multiplexity and job satisfaction therefore; this study attempt to fill the research gap that existed in the literature.

In accord to literature, job satisfaction considered losing its attention (Ahmadi, Shariati & Faraji, 2012; Asselt-Goverts, Embregts, & Hendriks, 2015) and this study is an attempt to revive the importance of the concept. Accordingly, job satisfaction is influenced by a number of factors (Locke, 1969). Smith, Kendall and Hulin (1969) classified these factors as pay, nature of work, promotion, supervisor and relations with coworkers. The integration of supervisor and coworker relations are the dynamic interactions that alter the level of job satisfaction. Studies revealed that social relations within an organization influence attitude, psychological behavior and personality of an employee

(Locke, 1969; Spector, 1997) which intensely affects the organizational outcomes (Van Strombroek-Burger, Sluis, & Montfort, 2011). Therefore, the study investigates the relational characteristics of multiplex social networks of an employee within professional arena.

Multiplex or multiplexity was originated as a new word in the field of social sciences, even though it had been extensively studied in natural sciences and computer sciences (Wasserman & Faust, 1994; Scott, 2000). The word has complex and complicated background, yet to be studied in the field of social sciences especially with respect to organizational behavior and attitudes (Robins & Pattison, 2006). Few researchers contributed their work on multiplexity (Galaskiewicz & Wasserman, 1993; Robbins & Pattison, 2006; Methot, 2010; LePine, Methot, Crawford & Buckman, 2012; Methot, 2015; Shah, Parker, & Waldstrom, 2016), the most recent studies are of Methot (2010, 2015). Her work is related to organizational aspects (job performance, team work, team effectiveness) and multiple relational ties (instrumental networks, friendship networks, hindrance networks, adversarial networks) prevailing in organizational setting. Ferriani, Fontiand and Corrado (2012) also contributed his work on Multiplexity with relation to social and economic network ties. Bliemel, McCarthy and Maine (2014, 2016) contributed their works in entrepreneurial networks and multiplexity. Hood, Cruz and Bachrach (2016) focus on friendship and conflict ties and studied the relationship between these multiplex ties and team performance. Shiplov (2012) put forward the concept of strategic multiplexity that needs to be explored by the researchers. Lorenzen and Andersen (2012) studied effects of multiplex relations on the performance of Bollywood actors. Bullis and Bach (1991) studied communication networks and multiplexity as predictors of organizational identification. Conversely, literature verified no study to be conducted in regard to multiplexity and job satisfaction (Verbrugge, 1979; Bullis & Bach, 1991; Galaskiewicz & Wasserman, 1993; Robins & Pattison, 2006; Methot, 2010; Ferriani, Fonti, &Corrado, 2012; LePine, Methot, Crawford, & Buckman, 2012; Lorenzen& Andersen, 2012; Shiplov, 2012; Venkataramani, Labianca, & Grosser, 2013; Methot, Lepine, Podsakoff, & Christian, 2015; Hood, Cruz, & Bachrach, 2016). Thus, this study investigates the job satisfaction of an employee based on benefits and detriments of positive and negative interactions. In order to provide a complete and accurate picture of social reality the study exclusively examines multiplex network ties.

Although multiple types of ties coexist within organization, two broad subsets of such positive ties have proven to be the dominant ones in predicting many organizational outcomes (Brass, 1995; Ibarra & Andrews, 1993): instrumental

and expressive or friendship ties (Venkataramani, Zhou, Wang, Liao, & Shi, 2016). Additionally, negative ties are identified as avoidance, hindrance, adversarial, conflict etc (Labianca, 2014). Therefore, based on past studies two of the variables; one from positive and other from negative side (i.e. friendship – hindrance network ties) are added to the framework of the study.

Dependent Variable

Job Satisfaction

The concept of job satisfaction come into sight as the study of attitudes ascended (Wright, 2006). It has been the focal issue in organizational research for decades (Flap &Volker, 2001). Many studies investigate about the manifestation of job satisfaction yet there exist a disagreement between the researchers about the definition of job satisfaction but most of the literature appreciated and referred to the definition of Locke (1979). He defined job satisfaction as the extent to which employees have "a pleasurable or positive emotional state resulting of one`s job or job experiences. He considered job satisfaction as emotional and affective relations of employees with their job. The studies further, considered the five specific dimensions of job satisfaction (job security, pay and other compensation, peer and co-workers, supervision) that are based on employees affective reactions (Hackman & Oldham, 1975). According to Scarpello and Campbell (1983) this evaluation of job satisfaction is most preferable as it considered the most inclusive measures than the summation of multiple dimensional measures.

Independent Variable

Multiple Network: Friendship-Hindrance Ties

The interaction of individuals in organizations may emerge into multiple types of networks. Multiplex networks deals with multiple relations among employees. It may also exist between two employees as stated "the compound relations within and between two types of ties" (Hanneman & Riddle, 2005) called as multiplex. According to the theory of social capital resources may accumulate or deplete creating two offsetting paths for the employee. Similarly, considering the social ledger theory, the relationship not only provides social capital but also social liabilities. In accord with the theories this study proposed multiple network ties that accumulate positive and negative resources i.e. when employees inherit a relation that accumulates resources it elicit positive association however, when employee engage in negative relation this detract from his valuable resources like time and attention thus creating a negative association.

Multiplex network is more complex phenomena as it is evident from research that such ties are difficult to maintain within a work context (Robins and Pattison, 2006; Methot, 2010; Methot, Lepine, Podsakoff & Christian, 2015).It necessitates time and effort to preserve multiple relations but if proper attention is not given to such relations despite being strong they create hindrances and conflicts that become hard to resolve.

In terms of this study, two uniplex ties - positively and negatively valanced (i.e. friendship and hindrance network ties) are combined to formulate multiplex relation. Coleman (1988) articulated friendship ties as a "source of social support, provide a sense of identity and personal belonging and serve to transmit normative expectations". According to Ibarra (1992) "friendship relations are important for getting things in organization". Conversely, Sparrowe, Liden, Wayne, and Kraimer (2001) stated hindrance network as "the relationship with coworkers who thwart task behaviors" i.e. the network ties expressed as the relationship with coworkers who make work difficult by withholding valuable information, resources and opportunities. This network may raise the feeling of threat, annoyance, emotional distress, and aggression in employees (Sparrowe et al., 2001; Umphress et al., 2003).

Further, the multiple friendship- hindrance networks are calculated through centrality measure. It focuses on identifying the most important and central actors within the network. The standard network centrality can be divided into three main measures: degree, betweenness and closeness (Freeman, 1979; Hanneman & Riddle, 2005). The degree centrality is based on the number of direct ties and actor has with other actors. Freeman (1979) defined degree centrality as "the number of ties incident upon a node or the degree of paths of length one that emanate from a node." In general, it takes into account the number of direct ties that an employee holds. The in-degree centrality of a network is defined as the "number of directional links to the actor from other actors (incoming links)" whereas out-degree centrality is defined as the "number of directional links from the actors to other actors (outgoing links)" (Brass, 1995).

Framework and Hypotheses

Based on past literature and previous theories, it is posited that multiple relations involve flow of information, emotional support, friendship, antagonism, animosity, impediments, strategic alliance and much more complex variables that shape a dynamic and challenging social environment. Hence, the study needs to investigate the impact of these variables and upon reviewing literature a hypothesized model is articulated that illustrates the relational ties in association with the dependent variable i.e. job satisfaction.
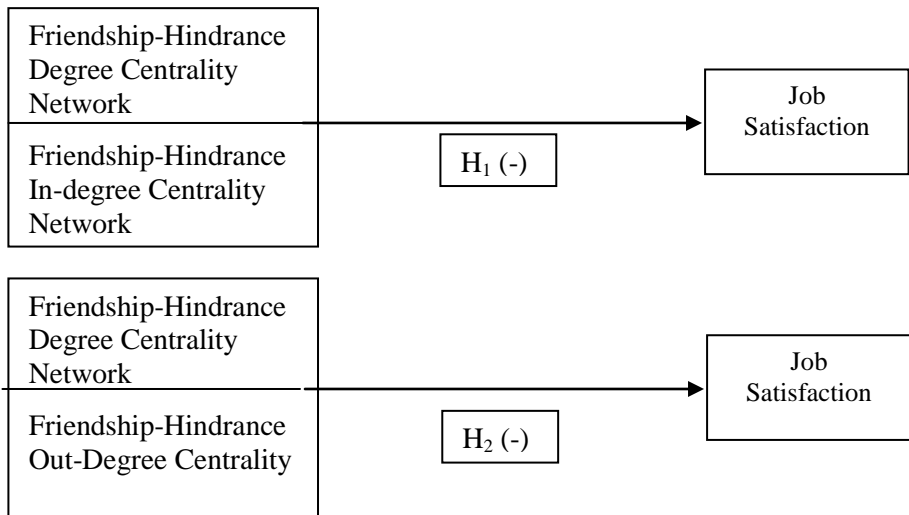
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┌─────────────────────────┐
│ Friendship-Hindrance    │
│ Degree Centrality       │                          ┌──────────────┐
│ Network                 │                          │ Job          │
├─────────────────────────┤ ─────────────────────▶  │ Satisfaction │
│ Friendship-Hindrance    │        H₁ (-)            └──────────────┘
│ In-degree Centrality    │
│ Network                 │
└─────────────────────────┘

┌─────────────────────────┐
│ Friendship-Hindrance    │
│ Degree Centrality       │                          ┌──────────────┐
│ Network                 │                          │ Job          │
├─────────────────────────┤ ─────────────────────▶  │ Satisfaction │
│ Friendship-Hindrance    │        H₂ (-)            └──────────────┘
│ Out-Degree Centrality   │
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Figure1: Hypothesized model of the study

Multiple Friendship-Hindrance Degree Centrality

In-degree friendship- hindrance multiple networks connote many people see him as a friend but in reality creating hindrance in their work. One act to be a friend but behaves like an enemy creating hindrance for other employee will surely not hold a true relation. An act like this won`t be acceptable. Ironically, they are professionals that lack humanity. The reasons for such act may be professional jealousy, personal selfish desires or any other causes. The employee with such intensions will never be satisfied and won`t ever gain true relations. Mostly, he will find himself trapped in anxiety, frustration and jealousy. His motives to create trouble and hindrance for his friend will always poke him internally for being disloyal. Therefore, hypothesized that targeting employees purposefully for harming will not be one-way traffic rather it will reciprocate with same intensity creating tension and dissatisfaction among employees.

H1a: Friendship-Hindrance Multiplex Network in-degree centrality is negatively associated with Job satisfaction.

As discussed earlier, friends in an organizational setting are stated as "emotional support resource providers" (LePine, Methot, Crawford & Buckman, 2012). However it depends on the feelings of an individual rather he is a true friend or friend for benefits or a leg puller. Such people behave like sugar coated pills. On front they appreciate, support and favor you. On back they are the ones cutting

the roots and making one down. Therefore, it is hypothesized as ties acting like friends but creating hindrances may cause annoyance, frustration and dissatisfaction.

H1b: Friendship-Hindrance Multiplex network out-degree centrality is negatively associated with Job satisfaction.

Methodology

Data collected from a Quetta head office of a premier telecommunication company. The organizational size was taken as network boundary and it allowed conducting an analysis of a whole organizational network by using a whole network approach. It examines set of interrelated employees that are bounded for analytical purposes. The data is collected by asking each respondent distinct question about their relationship with his coworkers. 230 employees were invited to participate, out of which 131 respondent returned the questionnaire yielding a response rate of 61.21%.

Dependent Variable

To measure the level of Job satisfaction, Job Diagnostic Survey Questionnaire (JDS) is used as the instrument designed to be completed by employees (Schult, 2013). It measures the overall degree to which the employee is satisfied and happy with the job as well a number of short scales (job security, pay and other compensation, peer and co-workers, supervision) which provide separate measures of satisfaction (Hackman & Oldham, 1974).

The data is also checked for ambiguous and missing values. Measurement of reliability is calculated as it is useful in determining the degree to which respondents are consistence.

Thus, according to reliability statistics of 14 items, the computed Cronbach alpha coefficient is 0.866 indicating high internal consistency and all the items measured same construct i.e. job satisfaction. Therefore, the dependent variable is transformed into composite variable by using average weighted score.

Independent Variable

The instrument measured network survey is a questionnaire. Based on the write-in method, participants in the organization were asked to identify others in the organization with whom there exists any form of relational ties. To assess the multiple friendship-hindrance network, respondents specifies the names of employees that are given value of 0 and 1. The zero indicates no relationship whereas 1 indicates that there exists a relationship. The raw data collected is used to compose independent networks in MS Excel Sheets which are further

specified into square matrices (Hanneman & Riddle, 2005). Later, the matrices are entered into the social network analysis software package UCINET VI (Borgatti, 2002; Borgatti, Everett & Freeman 2002) to run multiplex in-degree and out-degree centrality was calculated. The multiple coder operation deliberately specifies the existence of multiple relationships in a form of qualitative typology (Hanneman & Riddle, 2005) that is used to calculate the in and out degree centrality of each type of network.

Control Variables

It is evident through research (Hulbert, 1991) age, gender, job tenure; race and education affect job satisfaction (Kalleberg & Lascocco, 1983; Miller, 1980; Mottaz, 1987; Wright & Hamilton, 1979). Therefore, variables stated above are treated as control variables.

According to Brass (1985) in the organization females typically are not well-integrated as males therefore, we controlled this variable. Tenure is the number of years an employee has been working in the organization. It is taken as a control variable, because it is believed that employees with greater tenure would have a more central network position and job satisfaction due to the increased time they spent working in the organization. Race is also taken as a control variable because minorities are often marginalized in social networks (Zagenczky & Murrell, 2009). The control variables were coded, as age was measured in years. Gender was coded 1for male and 0for female. Respondent tenure was coded in years (0 – 25) and their education were coded according the standards of qualifications. Also race was controlled and coded as 0 for Balochi, 1 for Pathans, 2 for Punjabi and 3 for Sindhi.

Results

The dependent variable was examined to assure normality assumptions. The descriptive statistics of control variables (age, gender, educational background, racial background and job tenure) are summarized in table 1. The descriptive statistics describes the total sample composed of 106 male (80.8 percent) and 25 female (19.2 percent) respondents. The descriptive statistics provide information from 131 respondents, the range of ages is 30 to 50, with a mean of 38.7 and standard deviation of 7.27. The educational background mean of respondents is 3.65 and standard deviation shown as 4.00. Similarly, the respondent`s racial background calculated mean is 2.81 (SD=1.28). The average job tenure is 3.48 with a standard deviation of 1.06.

Table 1: *Descriptive Statistics and Correlation Matrix of Variables (N=131)*

Variables	Mn	Std. Dev.	1	2	3	4	5	6	7
Age	38.7	7.27							
Educational Background	3.65	4.00	.13**	-.05					
Racial Background	2.81	1.28	.15**	.05	.09				
Job Tenure	3.48	1.06	.44**	-.04	.15**	.09			
Job Satisfaction	5.1	.835	.16**	-.13**	-.05	.16**	.08		
Multiple Friendship-Hindrance In-degree Network	4.73	4.60	.05	-.11*	.02	.08	.13**	.12*	
Multiple Friendship-Hindrance Out-degree Network	3.97	2.70	.10*	.03	.16**	.06	.08	.01	.09

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)

The correlations analysis results indicates that there exist an association between job satisfaction and in-degree friendship- hindrance multiple network (r= 0.132, p<0.05) where as there is no correlation found between out-degree friendship-hindrance multiple networks and job satisfaction (r= -0.083, p >0.05). The multiple regression analysis was run to predict the influence of friendship-hindrance multiple network in-degree and out-degree centrality on job satisfaction. The two hypotheses were tested simultaneously. Table 2 shows the results of the analysis.

Table 2: *Summary of Multiple Regression Analysis of Variables Predicting Job Satisfaction (N=131)*

Variables	β coefficient	Hypothesis Test test- statistics	p- sig.
Dependent Variable			
Job Satisfaction			
(Intercept)	5.52	10.94	.000
Control Variables			
Age	.01	2.01	.05
Gender	-1.37	-2.89	.00
Educational Background	-.02	-1.78	.08
Racial Background	.12	3.72	.00
Job Tenure	.02	.46	.65
Independent Variables			
Multiple Friendship-Hindrance In-degree Network	-.02	- 2.75	.01
Multiple Friendship-Hindrance Out-degree Network	-.00	-.11	.92

The result indicates that in-degree friendship- hindrance multiple networks negatively impacts job satisfaction (β= 0.006, p <0.05). Thus, it can be concluded that hypothesis H_1 is accepted, signifying that it is difficult to work with a friend who may create hindrance. An employee involved in the friendship of a corrupt friend may experience strain and dissatisfaction.

Hypothesis H_2 predicted that the employees who take out-degree position in terms of centrality in friendship- hindrance multiple networks will be less satisfied with their associates. However, the result demonstrates that the out-degree friendship- hindrance multiple networks network has an insignificant impact on job satisfaction (β= - 0.02, p >005).The positive-negative valenced ties usually create destruction but the findings revealed that it has no effect on the outcome. The R square statistics is calculated as 0.310 expressed as 31.0% that shows how much variance in the dependent variable is perceived by multiple friendship-hindrance degree centrality. The results of ANOVA table shows F= 6.058, $df = 7$ and is significant, indicating that the combination of predictors significantly predict the effects on job satisfaction.

Discussion

The most prominent contribution of this research is that it clarified how multiple relational ties are distinct and unique from the relations that are uniplex in nature. The theory proposed that multiplex ties reflect stronger, intimating and affectionate interpersonal relation but when emerge in with negative approaches it yields pessimism and antagonism behavior. These types of relations are unique set of patterns therefore the result of this study will immensely be helpful and valuable for the researchers and practitioners, especially those who desire to refine the explicitly approach of multiplex network ties. The results of the study supported the predicted hypotheses and showed that multiple relations function distinctively with job satisfaction.

In regard to previous research, this study successfully combined the theoretical, conceptual and practical aspect of multiplex network. Unlike, uniplex ties multiplex ties different in significance and characteristics. Hence, the study found that multiplex network ties associations and disassociations among individuals or employees may lead to different outcomes. For instance, if multiplex ties prevails in abundance than it may lead to organizational failure by collapsing the hierarchical structure. As the results elicited that it is difficult to work with a friend who may create hindrance. The voluntary nature of friendship (Fehr, 1996) and negative feelings creates impediments to accomplish the work (Grosser, Lopez-Kidwell, & Labianca, 2010). Similarly, interaction and communication is important to maintain friendship (Raile, Kim, Choi, Serota, Park, & Lee, 2008) but that should be strong and true; not prevailing as a nuisance. If an employee involved in the friendship of a corrupt friend, he may experience strain and dissatisfaction.

Conclusion and recommendations

It was predicted that job satisfaction is negatively associated with friendship-hindrance network as employees intend they are treated with friendliness and liveliness but in fact their friends are the ones creating difficulties and hindrance for them in accomplishment of their work. The findings found supportive results for hypothesis H1, elucidating that the employees reporting greater number of friends in work place perceived that they have friends who can improve their mood and be helpful at workplace but instead such friends are likely to be a barrier and hindrance. As they are not true friends instead they came out as professional players who are fiends only for benefit. Although, no hindrance is actually expected from close friends especially at work as it may damage the satisfaction at professional and personal level. But a bereavement of close relations creates devastating effect on employee emotions causing severe shock, distress and grief. Thus, the study allows the researchers and managers to

visualize and understand the myriad of multiple relationships that can either increase or decrease the level of job satisfaction of an employee and suggest improving the relations and resolving conflicts within organization. It is recommended to segregate such ties that create pessimism. It is better to define the roles of employees so as to lessen the distraction that hindered the work. The success and failure often depends on the internal organizational structure, therefore, it is recommended to organizations to build enduring mutual relationships which help leverage resources and sustain success.

Although, maintaining such ties would be difficult as friends to mingle but if one desire to enhance its professional abilities he has to manage such ties but limiting the resources, time and energy. It is better for an employee to pay more attention towards his/her work and limited the number of multiple ties in a workplace as instead of increasing resources the benefits and resources are depleting (Methot, 2010).

To improve the generalizability of the study one can study the model in other workplace settings. The study focuses only on one centrality measure i.e. closeness. Future research can investigate the concept by applying other measures of centrality, transitivity, reciprocity, tie strength, density etc and may also examine the influence by studying with other organizational factors. The study has been limited to the individual relationship but the ties beyond the dyad as well as triad might also be examined to yield better results.

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